MODEL ELECTRICAL ENERGY COMPLIANCE FORM FOR NEW BUILDINGS

(Reference: ASHRAE/IESNA 90.1 - 1989, User's Manual - November 1992)

Project Name:_____Date:_____

Address:_____

Designer:_____Telephone: ( )_____

Documentation Author:_____Telephone: ( )_____

ELECTRICAL SUMMARY

BASIC REQUIREMENTS	WORKSHEETS
Distribution ☐ Electrical power feeders are subdivided by usage as required. ----5.4.1.1 ☐ Each tenant with a connected load over 100 KVA is provided with a separate distribution feeder. -----5.4.1.2 ☐ All required separate feeders have either permanent check meters or provisions for attachment of portable meters. -----5.4.1.3 and 5.4.1.4	☐ Transformer Loss Worksheet (E-2) if the total capacity of the transformers exceeds 300 KVA. ☐ Transformer Calculations attached.
Transformers ☐ Calculations for annual energy costs of transformer losses have been made and will be provided to the owner. -----5.4.2.2 ☐ Total transformer capacity (excluding utility transformer) _____KVA-----5.4.2 ☐ Annual energy costs of transformer losses $_____/yr. ----5.4.2	
Motors ☐ All motors in excess of 1 HP which are expected to operate more than 1000 hours per year or exceed the requirements of Table 5-1 as required.-----5.4.3.4 ☐ Motor horsepower ratings do not exceed 125% of the calculated maximum loads as applicable. -----5.4.3.4	
Completion ☐ The plans or specifications spell out the requirements for operations and maintenance information to be provided to the owner. -----5.4.4	

TRANSFORMER LOSS WORKSHEET

A	Average Electrical Rate ($/kWh)							
	Transformer Tag							
B	Rating (kVA)							
C	Rated Temperature Rise (°F)							
D	Cooling Medium							
E	Rated No-Load Transformer Loss (%)							
F	Rated Full-Load Coil Loss (kw)							
G	Annual No-Load Losses (kWh) 8760 x B x E							
H	Annual Hours of Low-Load Operation (10% to 50%)							
I	Annual Low-Load Losses (kW) 0.10 x F x H							
J	Annual Hours of Mid-Load Operation (50% to 80%)							
K	Annual Mid-Load Losses (kWh) 0.40 x F x J							
L	Annual Hours of High-Load Operation (80% to 100%)							
M	Annual High-Load Losses (kWh) 0.80 x F x L							
N	Total Annual Losses (kWh) G + I + K + M							
O	Total Cost of Annual Losses ($/yr) N x A							
Total Cost of Annual Cost of Transformer Losses_____($/yr) (Sum of all entries in Row O)								

LIGHTING SUMMARY

Compliance Approach: ☐ Prescriptive Method ☐ System Performance Method ☐ Cost Budge Method

BASIC REQUIREMENTS/PRESCRIPTIVE/PERFORMANCE	WORKSHEETS
Exterior Lighting ☐ Exterior lighting not intended for 24-hour use controlled by photocell. -----6.4.2.8 _____≤_____ Installed ELP ELPA ------6.4.1	☐ Exterior Lighting Power Worksheet (L-2) ☐ Performance Lighting Power Worksheet (L-4) ☐ Prescriptive Interior Lighting Power Worksheet (L-3) ☐ Lighting Control Points Worksheet (L-5) ☐ LTGSTD Output
Controls ☐ The installed lighting control points equal or exceed the required lighting control points in each and every room.-----6.4.2.2 ☐ Shut-off control in each space enclosed by ceiling high partitions. -----6.4.2.1 ☐ Controls readily accessible to personnel occupying the space. -----6.4.2.6 ☐ Hotel/motel guest rooms have master switches at the main door to turn off lights and receptacles. -----6.4.2.7	

Interior Lighting

☐ Fluorescent Lamp ballast meet or exceed the ballast efficiency factor (BEF) in Table 6-4.-----6.4.4.1

_____≤_____
ALP ILPA(6.5 or 6.6)

☐ Fluorescent lamp use multiple lamp ballasts with tandem wiring as required. -----6.4.4.3

☐ Lighting Power Control Credits Applied. -----6.4.3

☐ Fluorescent lamp ballast have a 90% or greater power factor. -----6.4.4.4

_____

☐ Daylight Sensing Controls

☐ Occupancy Sensors

☐ Programmable Timing Controls

☐ Lumen Maintenance Controls

EXTERIOR LIGHTING POWER WORKSHEET

Exterior Lighting Power Allowance - ELPA (6.4.1 & Table 6-1)

A	B	C	D
Area Description	Allowance (Table 6-1)	Area or Lineal Feet in Proposed Design	ELPA (BxC)
Exit (with or without canopy)	25 W/lf of door opening		
Entrance (without canopy)	30 W/lf of door opening		
High Traffic Entrance (with canopy)	10 W/ft² of canopied area		
Light Traffic Entrance (with canopy)	4 W/ft² of canopied area		
Loading Area	0.40 W/ft²		
Loading Door	20 W/lf of door opening		
Building Exterior Surfaces or Facades	0.25 W/ft² of illuminated surface		
Storage and Non-Manufacturing Work Areas	0.20 W/ft²		
Casual Use Areas (gardens, etc.)	0.10 W/ft²		
Private Driveways or Walkways	0.10 W/ft²		
Public Driveways or Walkways	0.15 W/ft²		
Private Parking Lots	0.12 W/ft²		
Public Parking Lots	0.18 W/ft²		
		Total ELPA →	

Installed Exterior Lighting Power

A	B	C	D
Fixture Type	# of Luminaires Installed	Watts per Luminaire	Installed Watts (B x C)
		Total Installed ELP →	

PRESCRIPTIVE INTERIOR LIGHTING POWER WORKSHEET

Interior Lighting Power Allowance - ILPA (6.5 & Table 6-5)

A	B	C	D
Building Type or Space Activity	GLA (ft^2)	ULPA (W/ft^2)	ILPA (W) [B x C]
		∑ ILPA→	

Interior Lighting Power Design (6.42 & 6.43)

A	B	C	D	E	F	G	H
Space ID	Luminaire Tag	Luminaire Description	Number of Luminaires	Watts Per Luminaire	Connected Power (W) [D x E]	PAF	ALP (W) [F x (1-G)]
				∑ CLP →		∑ ALP →	

PERFORMANCE INTERIOR LIGHTING POWER WORKSHEET

Interior Lighting Power Allowance - ILPA (6.6)

A	B	C	D	E	F	G	H
Room Tag	Ceiling Height (ft)	Area/Activity	UPD (W/ft^2)	Floor Area (ft^2)	Area Factor	# of Similar Spaces	LPB (W) [DxExFx G]
						∑ ILPA→	

Interior Lighting Power Design (6.42 & 6.43)

Space ID	Luminaire Tag	Luminaire Description	Number of Luminaires	Watts per Luminaire	Connected Power (W) [D x E]	PAF	ALP (W) [F x (1-G)]
						∑ ILPA →	

LIGHTING CONTROL POINTS WORKSHEET

Lighting Control Points (6.4.2.2, 6.4.2.3 & Table 6-2)

A	B	C	D	E	F	G	H	I	J	K	L	M
Space Description			LCP Required (6.4.2.2)			LCP Installed (6.4.2.3 & Table 6-2)						
Room Tag	Area (ft²)	# of Tasks	by Area [1+B/450]	by Task [1+C]	Total Required [min (H:M)]	Total Installed [sum(H:M)]	On/Off (1 Point)	Occ	Timer (2 Points)	3 Levels (2 Points)	4 Level (3 Points)	Dimming (3 Points)
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INTERNAL LOAD DENSITY

A. Provide the internal load density (ILD) according to Article 8.5.5.2, ASHRAE 90.1, 1989.

$$ILD = LPD + EPD + OLA =$$

$$LPD = \frac{ILPA}{GLA}$$

B. For shell and speculative buildings' ILD, refer to Article 8.4.6 and Table 8-1 of ASHRAE 90.1, 1989.